

A VIDEO GAME CONSOLE WITH INTEGRAL PRINTER DEVICE

Field of the Invention

5 The present invention relates to the field of video games and, more particularly, to a video games console having an integral compact printer device.

Summary of the Invention

In accordance with a first aspect of the present invention, there is provided a video game console device including:

10 means to receive detachable interactive program storage means for execution by said console;

Sub. cl 1 > processing and operating means for executing said interactive program stored on said detachable interactive program storage means, said program execution causing the generation of images for display on an image display means;

15 communication means to enable operational interaction from control devices during execution of said program; and

an integral printer apparatus including a printhead, ink supply unit, and print media feed means;

said printer apparatus being operatively associated with said processing and
20 operating means to print out on to print media images relevant to said interactive program.

In the preferred form, the console is designed for use with a detachable controller module that includes a variety of interactive control devices such as joysticks and control buttons etc. This controller may communicate with the console by wireless communication means such as the new "Bluetooth" system or by cable or other suitable
25 communication means.

Preferably, the integral printer apparatus includes an internal print media supply unit.

In the preferred form, the print media is in the form of sheets of paper or card and the print media supply unit and ink supply unit are jointly housed in a replaceable cartridge assembly.

In one particularly preferred form, the replaceable cartridge includes a print media feed roller device that interacts with a non-replaceable print media feed mechanism provided within the console.

Desirably, the interactive program is activated to print out images via the printer apparatus at certain predetermined positions in the program.

The printer apparatus preferably comprises an ink jet printer that is optionally in the form of a pagewidth array of ink ejection nozzles which eject ink by means of a series of actuators. Preferably, the actuators are thermal bend actuators.

In a preferred form, the detachable program storage means is in the form of a Digital Video Disk also known as a Digital Versatile Disk (DVD) executable by a DVD player. In other similarly preferred forms CD-ROMs and semiconductor memory cartridges can be used in place of DVDs with appropriate drives or connectors, hardware and software.

Brief Description of the Drawings

A preferred embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Fig. 1 is a front perspective view of a first embodiment video game console according to the invention with detachable controller module, illustrating a printed card being ejected from the integral printer;

Fig. 2 is a front perspective view of the console comprising printer module and DVD module with the top controller module removed;

Fig. 3 is a rear perspective of the console shown in Fig. 2;

Fig. 4 is a front view of the console shown in Figs. 2 and 3;

Fig. 5 is a side view of the console assembly shown in Fig. 4;

Fig. 6 is an exploded front perspective view of the console assembly shown in Figs. 2 to 5;

Fig. 7 is a front perspective view of the console with the printer module top cover removed;

Fig. 8 is an exploded perspective view of the printer apparatus including the printhead, print media feed mechanism and printhead ink distribution assembly but excluding the ink supply;

Fig. 9 is a front perspective view of the console showing the printer module in the raised position for insertion of the print media and ink supply cartridge; and

Fig. 10 is a schematic view of the assembly shown in Fig. 9 illustrating insertion of a DVD into the DVD player module.

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Description of Preferred and Other Embodiments

In the illustrated preferred embodiment, there is provided a video game player which includes an integral printer which is able to print out, preferably on business card sized cards, information which enhances the interactivity of the video game.

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Turning to the figures, there is shown a video game console 1 comprising a printer module 2 and Digital Video Disk (DVD) player module 3. Connected to the console is an optional detachable controller module 4 as shown in Fig. 1. The detachable controller module can communicate with the console by any suitable means including wireless systems such as "Bluetooth" or cable etc. and can be releasably secured to the console by any suitable means including magnetic coupling 5 or mechanical interlocking.

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The printer module 2 and DVD player module 3 are interconnected by means of connecting housing extensions 6 and 7 which hinge about pivots 8 as shown in Fig. 3. The lower connecting extension 7 preferably includes various input/output connectors and ports 9 for optionally connecting joy sticks and other interactive devices. A video outlet port is also provided for connection with standard video type devices as is common in the art. Further ports can also be provided for an external power source or other devices such as sound systems to be interconnected to the console.

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The DVD player module 3 is able to take standard DVD games disks 10 as is becoming popular in the industry. The DVD player is interconnected to a high end processor (not shown) which can be constructed along similar lines to standard high end video game processors or along the lines of that discussed in PCT Patent Application No. PCT/AU98/00544, the contents of which are specifically incorporated herein by cross reference. The processor in turn utilizes memory for standard video game functions and interacts with the print controller chip which is also preferably housed with the high end processor on PCB 11 within the printer module 2. The controller chip (also not shown) can be structured along the lines set out in Australian provisional patent specification

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entitled 'Image creation method and apparatus (ART 77)' filed 9 November, 1998, the contents of which are again incorporated by cross reference. Batteries for driving the console are preferably located in the base of the DVD player module as shown by arrow 12.

5 The printer module 2 is preferably constructed so as to simultaneously provide a closure for the DVD player module 3. This is achieved by hinging the printer unit to the DVD module as shown. The printer module 2 comprises a base molding 14 that is configured to fully enclose a DVD disk receiving compartment 15 formed in the upper surface of the DVD player module 3. The base molding 14 is further configured to define
10 an integral chassis structure 16 adapted on its under side to receive and locate an ink and paper cartridge 18.

15 The upper surface of the chassis structure 16 is configured to support a printhead and ink distribution assembly 19, print media feed mechanism 20, and ink connecting hoses 21, the latter linking ink outlet nozzles 22 on the chassis with ink inlet nozzles 23 provided on the printhead and ink distribution assembly 19. The printer and DVD control PCB 10 is also supported on the chassis 16 and has flexible connections 26 extending therefrom to interconnect the DVD and printer control buttons 27 and 28 provided on a top cover molding 29.

20 Details of the printhead, ink distribution assembly and print media feed means are best illustrated in Fig. 8. The printhead, which is preferably in the form of a pagewidth ink jet printhead chip, is packaged with an ink distribution unit and printhead cover into a printhead module 30. This module 30 is supported on a printhead chassis molding 32, and further includes a printhead capping mechanism 33, paired drive rollers 34 and 35, stepper motor 36 and an associated gear box 37 that engages the drive rollers 34 and 35.

25 Sub 30 The preferred ink and paper cartridge is preferably in accordance with that described in the applicant's copending simultaneously filed application entitled "Ink and print media cartridge with integral pickup roller", the contents of which are incorporated herein by reference. In the alternate embodiment illustrated in the accompanying drawings the ink and paper cartridge comprises a casing 40 defining an upper print media storage region 41
30 adapted to hold a stack of paper cards or sheets 42. A card dispensing outlet is shown at 43. The lower portion of the casing defines an ink supply region 45 which is separated

internally into four sections each of which connect with piercable ink supply outlets 46. On installation, these outlets 46 are pierced by formations in the underside of the base molding so that ink flows from the cartridge to the outlet nozzles on the chassis 16, via connecting hoses 21, to the printhead and ink distribution assembly 19.

5 In yet another embodiment, the printer unit and print media container can be snap fitted into the console and can be constructed in accordance with the principles as outlined in Australian provisional patent entitled 'Image creation method and apparatus (ART 79)' also filed by the present applicant, the contents of which are also hereby incorporated by cross reference.

10 ^{disc 67} In use, the console is connected to a video device and a DVD 48 is inserted into the DVD player module 3. Appropriate controllers are then selected. These may be the detachable controller module 1 as shown in Fig. 1, or alternatively other external interactive controllers. The printer can then be operated during execution of the program in the DVD either manually or automatically as discussed in more detail below.

15 It will be evident to those skilled in the art that the preferred embodiment provides for a video games system enabling print on demand cards. These cards can be utilized for a number of purposes. Firstly, the video game can, at certain predetermined levels, print out a series of 'brag cards'. These can provide a high resolution picture which can only be achieved at a certain point in the game. The brag cards can be personalised with the game
20 players name, score, chosen character, accumulated wealth or objects, etc. The cards could also include a photographic likeness where the video game arrangement includes an optional image sensor (not shown). With such an option, the brag cards could also be personalised with a photographic likeness mapping on to 3D characters etc.

The DVD player can be adapted to play standard DVD movies in addition to being
25 configured to read CD-ROMs so as to provide information from encyclopaedias, maps etc provided by other CD-ROMs or DVD disks. In this manner, images from DVD movies and information from such CD-ROM or DVD repositories can be printed out. It should be noted that while the preferred form uses a DVD player or drive, the interactive programs may be stored on CD-ROM or on semiconductor memory cartridges, the latter being
30 popularly used with pocket sized prior art video game devices.

Additionally, although the preferred embodiment described is designed for optional

use with non portable external display and control devices, the game storage medium, controls, game processor, screen, audio and printer may all be housed in the same housing, and this may be pocket sized if required.

5 Where educational software is provided, the printer can be utilized to print out standard award certificates or diplomas upon reaching various levels. Such a system provides for an ideal incentive for children utilizing the system to become further involved in educational software running on the system. The utilization of the printer also allows parents to monitor children in the utilization of the device through, for example, the demanding of certain information or diploma certificates being printed out at various steps
10 before the device is able to be utilized as a game playing machine. The arrangement can be synergistic between the game playing and educational software, where the educational software prints out a code or clue for utilization by the user in playing the games. Of course, many other interactive uses can be provided.

15 It will be appreciated by those skilled in the art that numerous variations and/or modifications may be made to the present invention as shown without departing from the spirit or scope of the invention as broadly described. Accordingly, the present embodiment is to be considered in all respects to be illustrative and not restrictive.